

Mathematical Reviews

EDITORIAL COMMITTEE
Leonard D. Berkovitz
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Gerald J. Janusz, *Executive Editor*

Annual Index — 1990

Author Index A — L

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Index of Mathematical Papers Volume 22
American Mathematical Society
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Mathematical Reviews

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L. D. Berkovitz, J. L. Selfridge, B. A. Taylor, H. F. Weinberger

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PREFACE

This annual index of Mathematical Reviews (MR) is included with each subscription and is also available separately. It is also called Volume 22 of the Index of Mathematical Papers (IMP). Volumes 6–9 of IMP are the annual indexes of MR for the years 1974–77 and are available as a set. The 1978 annual index was the first to be included with each subscription. There are cumulative author indexes to MR that cover 1940–59 (Vols. 1–20), 1960–64 (Vols. 21–28) and 1965–72 (Vols. 29–44), subject indexes for 1940–58 (Vols. 1–19) and 1959–72 (Vols. 20–44), and author and subject indexes for 1973–79 (Vols. 45–58) and 1980–84.

The classification scheme used in the present index is the 1980 Mathematics Subject Classification (1985 Revision). Starting in January 1991, a new version of this scheme will be used in MR. A copy of the 1991 Mathematics Subject Classification scheme is printed in the back of the subject portion of this index.

The entries in the author, key and subject indexes are comprised of all items reviewed in MR during a given year and some items which will not be reviewed by MR but which have appeared in Current Mathematical Publications (CMP). A star (★) preceding a title indicates a book, or other item that is not a periodical, which is reviewed as a whole.

Author index; separate key index

The entries in the author and key indexes give full bibliographic information. These entries are accompanied by review numbers and classification numbers; secondary classification numbers are given in parentheses. Entries are listed alphabetically by author; entries having several authors are listed in full under each author. Surnames consisting of more than one part (e.g., de Branges, van der Corput) are listed under the first capital letter. Collections of papers, proceedings, bibliographies, tables, etc. that are edited rather than authored are listed in the key index by title and by "key entry". For example, the publication entitled *Contributions to General Algebra* is listed under Contributions to General Algebra and is also listed under Conference: Contributions to General Algebra and under the location of the meeting. Some monographic series (e.g., Amer. Math. Soc. Transl. (2)) have entries under the series title in this index.

Arrangement of entries in the author and key indexes

For a given heading (i.e., the primary name of an author, or a title), full entries are listed in order of nominal publication dates; the cross-references are in MR number order after the full entries. The arrangement of each entry is the same as in the heading of its review in MR. The general form for entries is as follows:

Books, Monographs. (Coauthors {if necessary}) Title. (Language of original {if necessary}) [English translation of title {if necessary}] Miscellaneous information {edition, editors, translators, series, etc.}. Publisher, city, date. Pagination. (Reviewer's name) Review number Primary classification (Secondary classifications {if necessary}).

Journal article. (Coauthors {if necessary}) Title of article {in English translation if the original title is not in English}. (Language of original {if necessary}. Summaries in languages other than the original {if necessary}) Journal abbreviation {including series number if necessary} volume number(volume number in first series {if given}) (nominal date), issue number {if necessary}, first page–last page (imprint date). (Reviewer's name) Review number Primary classification (Secondary classifications {if necessary}).

The first three digits of the review number of an item refer to the MR issue in which the review is published and the last five digits refer to its position within that issue. The first two digits after the colon are the general subject classification of the item.

The phrase "EA 90m" after an MR number indicates that an MR erratum or addendum to the review appears at the end of the 90m issue.

Subject index

The entries in the subject index are arranged in classification order. For a given classification, all entries with that classification as a primary appear first, with authored entries appearing before unauthored entries. These are followed by entries with that classification as a secondary. Again, authored entries appear before unauthored entries. Each section under a given classification is arranged in alphabetical order. For each entry, the author(s), title, language, translated title {if necessary} and the review number {if present} appear at the first author only. The entries for subsequent authors are cross-references to the first author. Complete bibliographic information is available in the annual author and key indexes as well as in the MR review.

Cross-references

There are four kinds of cross-references in these indexes:

Name variations. An author's primary name is the variation of the name that MR has chosen on the basis of frequency and currency of usage. Items by a given author are usually listed under the author's primary name.

In the author index, cross-references to the primary form are given from sufficiently distinct alternative forms of the author's name that have been used in items reviewed.

Authors in other capacities. In the author index, the names of persons associated with an item in a capacity other than that of author (e.g., editor, translator, subject of a biography, etc.) are also listed. In the subject index, such names appear in parentheses. In both indexes these items occur only as cross-references to complete listings.

Key entries. Cross-references for such entries as bibliographies, obituaries and references to special events are made to the authors of the papers in which these items appear, e.g. Bibliography: Gauss, Carl Friedrich *See* Bühler, Walter K., 89h:01057.

Unreviewed entries. Some entries in these indexes have not been reviewed in MR (e.g., items that do not appear to be in final form, or that are at the fringes of MR's scope) although they have been listed in CMP. If an unreviewed item is part of a collection, it will have a cross-reference to the review number for that collection's table-of-contents review. Other unreviewed items are labeled "(Not in MR)".

Transliteration

Since 1983, MR has used the Cyrillic transliteration in use by ANSI, LC, Zbl, ISI, and others. This is also the system used throughout this index for all items. A table listing the transliteration appears at the end of the author/key index.

Names of Chinese authors

The name of a Chinese author appears in the index in Western form. For example, Hua Luo-geng will be listed as Hua, Luo Geng, as though the author's name were Luo Geng Hua. The pinyin transliteration is used for mainland Chinese authors and the Wade-Giles transliteration is used for Taiwanese authors.

In an undertaking of this size errors are inevitable, despite elaborate precautions and checks. The editors of Mathematical Reviews would be very glad to have their attention drawn to errors in this index and also in the earlier indexes.

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Aaberge, T. A preliminary framework for continuum thermodynamics. *Helv. Phys. Acta* **62** (1989), *no.* 1, 47–67. (M. Carrassi) **90e:80004** 80A10 (73B30)

Aaftink, Jan Far-sighted equilibria in 2 × 2, noncooperative, repeated games. *Theory and Decision* **27** (1989), *no.* 3, 175–192. (Summary) **90j:90157** 90D10 (90D05)

Aalbersberg, IJ. J. (*with* Hoogeboom, H. J.) Characterizations of the decidability of some problems for regular trace languages. *Math. Systems Theory* **22** (1989), *no.* 1, 1–19. (Yves Metivier) **90g:68074** 68Q45 (03B25, 03D05)

Aalen, Odd O. Dynamic modelling and causality. *Scand. Actuar. J.* **1987**, *no.* 3-4, 177–190. (Summary) **90f:62319** 62P10 (60G44, 62M10, 62P05)

— Dynamic description of a Markov chain with random time scale. *Math. Sci.* **13** (1988), *no.* 2, 90–103. (Xiang Qun Yang) **90a:60127** 60J25 (62M99, 92A15)

Aam, Sverre (*with* Wu, Felix F.; Liu, Wen-Hsiung E.; Holten, Lars; Gjelsvik, Anders) Observability analysis and bad data processing for state estimation using Hachtel's augmented matrix method. *MIC—Modeling Identification Control* **9** (1988), *no.* 3, 109–128. (Seihaku Higuchi) **90a:93105** 93E10 (93B07, 93B25)

Aamri, Mohamed La topologie T_u et le théorème du graphe fermé. (English summary) [The topology T_u and the closed graph theorem] *Atti Accad. Peloritana Pericolanti Cl. Sci. Fis. Mat. Natur.* **61** (1983), 221–228 (1985). (P. Pérez Carreras) **90f:46013** 46A30

Aardal, Karen (*with* Larsson, Torbjörn) A Benders decomposition based heuristic for the hierarchical production planning problem. Production planning and control (Eindhoven, 1988). *European J. Oper. Res.* **45** (1990), *no.* 1, 4–14. (Summary) **90m:90144** 90B30

Aaron, J. E. (*with* Sadun, Lorenzo) Chern numbers and adiabatic transport in networks with leads. *Phys. Rev. Lett.* **62** (1989), *no.* 26, 3082–3084. (Summary) **90c:81061** 81C99 (81H99)

Aaronson Hutson, Vicki (*with* ReVelle, Charles) Maximal direct covering tree problems. *Transportation Sci.* **23** (1989), *no.* 4, 288–299. (Summary) **90k:90053** 90B10

Aarts, Emile (*with* Korst, Jan) Computations in massively parallel networks based on the Boltzmann machine: a review. PARLE: Conference on Parallel Architectures and Languages—Europe (Eindhoven, 1987). *Parallel Comput.* **9** (1988/89), *no.* 2, 129–145. (Summary) **90a:90156** 90C27 (82A57, 92A05, 92A09)

— (*with* Korst, Jan) ★ Simulated annealing and Boltzmann machines. A stochastic approach to combinatorial optimization and neural computing. Wiley-Interscience Series in Discrete Mathematics and Optimization. *John Wiley & Sons, Ltd., Chichester*, 1989. xii+272 *pp. ISBN* 0-471-92146-7 (Th. M. Liebling) **90e:90096** 90C27 (68Q99, 92A09)

— (*with* Korst, Jan) Boltzmann machines for travelling salesman problems. *European J. Oper. Res.* **39** (1989), *no.* 1, 79–95. (Alexander H. G. Rinnooy Kan) **90d:90034** 90B10 (90C27)

— (*with* van Laarhoven, P. J. M.) Simulated annealing: an introduction. *Statist. Neerlandica* **43** (1989), *no.* 1, 31–52. (Alexander H. G. Rinnooy Kan) **90g:90125** 90C27 (65K05)

Aarts, J. M. Orientation of orbits in flows. *Papers on general topology and related category theory and topological algebra (New York, 1985/1987)*, 1–7, *Ann. New York Acad. Sci.*, 552, *New York Acad. Sci., New York*, 1989. (L. Janos) **90h:54045** 54H20

— (*with* Mršević, M.) Pairwise complete regularity as a separation axiom. *J. Austral. Math. Soc. Ser. A* **48** (1990), *no.* 2, 235–245. (Ivan L. Reilly) **90m:54029** 54D15 (54E55)

Aase, Knut K. (*with* Øksendal, Bernt) Admissible investment strategies in continuous trading. *Stochastic Process. Appl.* **30** (1988), *no.* 2, 291–301. (Marco Scarsini) **90a:90018** 90A09 (60H10)

Aavatsmark, I. Capillary energy and the entropy condition for the Buckley-Leverett equation. *Current progress in hyberbolic systems: Riemann problems and computations (Brunswick, ME, 1988)*, 21–25, *Contemp. Math.*, 100, *Amer. Math. Soc., Providence, RI*, 1989. (Summary) **90k:35161** 35L65 (35L67, 76L05, 76S05, 76T05)

— Kapillarenergie als Entropiefunktion. (English and Russian summaries) [Capillary energy as entropy function] *Z. Angew. Math. Mech.* **69** (1989), *no.* 10, 319–327. (Peter Knabner) **90i:76134** 76S05 (35L65, 35L67, 76T05)

Abad, A. (*with* Sein-Echaluce, M.) Algebraic manipulators in celestial mechanics. (Spanish. English summary) *Rev. Acad. Cienc. Zaragoza* (2) **43** (1988), 117–127. (Not in MR) 70–08 (70F15)

Abad, Manuel (*with* Monteiro, Luiz) ★ Monadic symmetric Boolean algebras. Notas de Lógica Matemática [Notes on Mathematical Logic], 37. *Universidad Nacional del Sur, Instituto de Matemática, Bahía Blanca*, 1989. 30 *pp.* (D. Monk) **90e:03080** 03G25 (06E99)

Abad, Prakash L. Multi-product multi-market model for co-ordination of marketing and production decisions. *Internat. J. Systems Sci.* **20** (1989), *no.* 11, 2011–2027. (Not in MR) 90B50 (90A07)

Abadi, Martin (*with* Burrows, Michael; Needham, Roger) Authentication: a practical study in belief and action. *Proceedings of the Second Conference on Theoretical Aspects of Reasoning about Knowledge (Pacific Grove, CA, 1988)*, 325–342, *Morgan Kaufmann, Los Altos, CA*, 1988. (*see* **90d:03009**) 68Q10 (68M10, 92A25)

— (*with* Lamport, Leslie; Wolper, Pierre) Realizable and unrealizable specifications of reactive systems. *Automata, languages and programming (Stresa, 1989)*, 1–17, *Lecture Notes in Comput. Sci.*, 372, *Springer, Berlin-New York*, 1989. (*see* **90m:68001**) 68Q60 (68Q10)

— (*with* Feigenbaum, Joan; Kilian, Joe) On hiding information from an oracle. *J. Comput. System Sci.* **39** (1989), *no.* 1, 21–50. (Uwe Schöning) **90m:68033** 68Q05 (03D15, 68Q15)

— (*with* Manna, Zohar) Temporal logic programming. *J. Symbolic Comput.* **8** (1989), *no.* 3, 277–295. (Petr Jirků) **90m:68107** 68T25 (03B45, 03B70)

— The power of temporal proofs. *Theoret. Comput. Sci.* **65** (1989), *no.* 1, 35–83. (Fangming Song) **90f:03058** 03B70 (03B45, 68Q60)

Abadie, Jean (*with* M'Silti, Halim) La programmation mathématique multicritère et la gestion des ressources en eau. (English summary) [Multicriterion mathematical programming and water resource management] *RAIRO Rech. Opér.* **22** (1988), *no.* 4, 363–385. (Summary) **90a:90180** 90C31 (90B50, 92A17)

Abaffy, József (*with* Spedicato, Emilio) ★ ABS projection algorithms. Mathematical techniques for linear and nonlinear equations. Ellis Horwood Series: Mathematics and its Applications. *Ellis Horwood Ltd., Chichester; Halsted Press [John Wiley & Sons, Inc.], New York*, 1989. 220 *pp. ISBN* 0-470-21507-0 (R. P. Tewarson) **90k:65009** 65–02 (65Fxx, 65H10)

Abakirov, T. Sh. Inequalities between auxiliary and central exponents. (Russian) *Differentsial'nye Uravneniya* **25** (1989), *no.* 10, 1659–1662, 1834; *translation in Differential Equations* **25** (1989), *no.* 10, 1143–1145. (Summary) **90i:34071** 34D05

— Auxiliary exponents. (Russian) *Differentsial'nye Uravneniya* **25** (1989), *no.* 3, 515–517, 550. (Summary) **90e:34079** 34D05

Abakuks, Andris (*with* Kyriakidis, E. G.) Optimal pest control through catastrophes. *J. Appl. Probab.* **26** (1989), *no.* 4, 873–879. (P. R. Parthasarathy) **90m:92066** 92A15 (60J85)

Abakumov, Yu. G. A criterion for the continuability of Chebyshev systems and construction of examples of noncontinuable Chebyshev systems. (Russian) *Geometric questions in the theory of functions and sets (Russian)*, 3–6, *Kalinin. Gos. Univ., Kalinin*, 1986. (*see* **90h:00005**) 41A50

— (*with* Vinogradov, O. M.) Conditions for continuability of Chebyshev systems. (Russian) *Application of functional analysis in approximation theory (Russian)*, 4–11, *Kalinin. Gos. Univ., Kalinin*, 1988. (S. Aljančić) **90d:41047** 41A50

Abalakin, V. K. In memory of Boris Petrovich Gerasimovich (1889–1937). (Russian) *Istor.-Astronom. Issled. No.* 21 (1989), 251–252. (Not in MR) 01A70

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Abara, Jephthah A. Fleet assignment using integer linear programming. (French summary) *Operational research '87 (Buenos Aires*, 1987), 613–625, *North-Holland, Amsterdam-New York*, 1988. (*see* **90a:90002**) 90B35 (90C10)

Abarbanel, Henry D. I. (*with* Brown, Reggie; Yang, Yumin M.) Hamiltonian formulation of inviscid flows with free boundaries. *Phys. Fluids* **31** (1988), *no.* 10, 2802–2809. (Tudor S. Ratiu) **90a:76041** 76A02

Abarbanel, Saul (*with* Kumar, Ajay[2]) Compact high-order schemes for the Euler equations. *J. Sci. Comput.* **3** (1988), *no.* 3, 275–288. (Summary) **90d:65176** 65M99 (35L65, 76–08, 76L05)

Abashkina, N. F. (*with* Belkina, Z. V.; Mokshina, R. G.; Benediktova, L. V.; Borisova, L. M.) ★ Немецкий язык для математиков. Часть I. (Russian) [German for mathematicians. Part I] *Voronezh. Gos. Univ., Voronezh*, 1988. 144 *pp. ISBN* 5-7455-0075-1 (Editors) **90k:00040a** 00A20

— (*with* Belkina, Z. V.; Mokshina, R. G.; Benediktova, L. V.; Borisova, L. M.) ★ Немецкий язык для математиков. Часть II. (Russian) [German for mathematicians. Part II] *Voronezh. Gos. Univ., Voronezh*, 1988. 95 *pp. ISBN* 5-7455-0075-1 (Editors) **90k:00040b** 00A20

Abasov, M. T. (*with* Zakirov, S. N.; Palatnik, B. M.) Adaptation of a geological-mathematical model of gas field development under water drive. (Russian) *Dokl. Akad. Nauk SSSR* **308** (1989), *no.* 2, 321–324. (From the introduction) **90k:86004** 86A60 (76S05)

Abatangelo, L. Maria (*with* Dragomir, Sorin; Höjö, Shun-ichi) On submanifolds of Finsler spaces. *Tensor (N.S.)* **47** (1988), *no.* 3, 272–285. (H. Rund) **90m:53033** 53B40 (53C60)

Abatangelo, Vito (*with* Larato, Bambina) A characterization of Denniston's maximal arcs. *Geom. Dedicata* **30** (1989), *no.* 2, 197–203. (Tamás Szönyi) **90e:51018** 51E20

Abate, Joseph (*with* Whitt, Ward) Approximations for the $M/M/1$ busy-period distribution. *Queueing theory and its applications*, 149–191, *CWI Monographs*, 7, *North-Holland, Amsterdam-New York*, 1988. (Summary) **90i:60064** 60K25 (90B22)

Abate, Marco Boundary behaviour of invariant distances and complex geodesics. *Atti Accad. Naz. Lincei Rend. Cl. Sci. Fis. Mat. Natur.* (8) **80** (1986), *no.* 3, 100–106 (1987). (Graziano Gentili) **90e:32034** 32H15 (32F15)

— Horospheres and iterates of holomorphic maps. *Math. Z.* **198** (1988), *no.* 2, 225–238. (M. Hervé) **90e:32028** 32H15

— Annular bundles. *Pacific J. Math.* **134** (1988), *no.* 1, 1–26. (Thomas Peternell) **90e:32031** 32L05 (32M05)

— Common fixed points of commuting holomorphic maps. *Math. Ann.* **283** (1989), *no.* 4, 645–655. (Graziano Gentili) **90k:32074** 32H15 (30D05)

Abawi, A. T. (*with* Liao, Guo Jun; Lawrence, A. F.) An application of Fokker-Planck equation to Josephson junction. *Acta Math. Sci. (English Ed.)* **9** (1989), *no.* 1, 109–120. (Summary) **90f:82017** 82A35 (35Q20, 81J05)

Abbakumov, V. L. Large deviations of U-statistics and asymptotic optimality of integral tests of symmetry. (Russian) *Rings and modules. Limit theorems of probability theory, No.*

2 (*Russian*), 117–124, 215, *Leningrad. Univ., Leningrad*, 1988. (S. A. Book) **90e:62067** 62G20 (60F10, 62G10)

Abbasi, G. Q. Central products of some metabelian p-groups of maximal class. (Russian) *Vestnik Moskov. Univ. Ser. I Mat. Mekh.* **1988**, *no.* 3, 14–18, 113; *translation in Moscow Univ. Math. Bull.* **43** (1988), *no.* 3, 16–20. (È. M. Pal'chik) **90b:20022** 20D45 (20F28)

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hà huy Khoái *see* **Hà Huy Khoái**

nguen van Khoang *see* **Nguen Van Khoang**

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